

SEQUENCE LISTING

<110> Wright, David A.
Voytas, Daniel F.

<120> Plant Retroelements and Methods Related Thereto

<130> P-1065 ISURF Plant Retroelement

<140> unknown
<141> 1999-05-28

<150> 60/087125
<151> 1998-05-29

<160> 42

<170> PatentIn Ver. 2.0

<210> 1
<211> 18
<212> DNA
<213> Glycine max

<400> 1
tggcgccgtt gccaattg

18

<210> 2
<211> 18
<212> DNA
<213> Glycine max

<400> 2
tggcgccgtt gtcgggga

18

<210> 3
<211> 6
<212> DNA
<213> Glycine max

<400> 3
ttgggg

6

<210> 4
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 4

Met Ala Ser Arg Lys Arg Lys
1 5

<210> 5

<211> 1263

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 5

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cctccagacc atgatccat ccttccgct ctgttactc cagggggacg atttggatgtt 480
aatgttgata gtgccccctg gaagctgctg cggaaaggatc tgatgacgct cgccgcagaca 540
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tga 1263

<210> 6

<211> 421

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 6

Met Ala Ser Arg Lys Arg Lys Ala Val Pro Thr Pro Gly Glu Ala Ser
1 5 10 15

Asn Trp Asp Ser Ser Arg Phe Thr Phe Glu Ile Ala Trp His Arg Tyr
20 25 30

Gln Asp Ser Ile Gln Leu Arg Asn Ile Leu Pro Glu Arg Asn Val Glu
35 40 45

Leu Gly Pro Gly Met Phe Asp Glu Phe Leu Gln Glu Leu Gln Arg Leu
50 55 60

Arg Trp Asp Gln Val Leu Thr Arg Leu Pro Glu Lys Trp Ile Asp Val
65 70 75 80

Ala Leu Val Lys Glu Phe Tyr Ser Asn Leu Tyr Asp Pro Glu Asp His
85 90 95

Ser Pro Lys Phe Trp Ser Val Arg Gly Gln Val Val Arg Phe Asp Ala
100 105 110

Glu Thr Ile Asn Asp Phe Leu Asp Thr Pro Val Ile Leu Ala Glu Gly
115 120 125

Glu Asp Tyr Pro Ala Tyr Ser Gln Tyr Leu Ser Thr Pro Pro Asp His
130 135 140

Asp Ala Ile Leu Ser Ala Leu Cys Thr Pro Gly Gly Arg Phe Val Leu
145 150 155 160

Asn Val Asp Ser Ala Pro Trp Lys Leu Leu Arg Lys Asp Leu Met Thr
165 170 175

Leu Ala Gln Thr Trp Ser Val Leu Ser Tyr Phe Asn Leu Ala Leu Thr
180 185 190

Phe His Thr Ser Asp Ile Asn Val Asp Arg Ala Arg Leu Asn Tyr Gly
195 200 205

Leu Val Met Lys Met Asp Leu Asp Val Gly Ser Leu Ile Ser Leu Gln
210 215 220

Ile Ser Gln Ile Ala Gln Ser Ile Thr Ser Arg Leu Gly Phe Pro Ala
225 230 235 240

Leu Ile Thr Thr Leu Cys Glu Ile Gln Gly Val Val Ser Asp Thr Leu
245 250 255

Ile Phe Glu Ser Leu Ser Pro Val Ile Asn Leu Ala Tyr Ile Lys Lys
260 265 270

Asn Cys Trp Asn Pro Ala Asp Pro Ser Ile Thr Phe Gln Gly Thr Arg
275 280 285

Arg Thr Arg Thr Arg Ala Ser Ala Ser Ala Ser Glu Ala Pro Leu Pro
290 295 300

Ser Gln His Pro Ser Gln Pro Phe Ser Gln Arg Pro Arg Pro Pro Leu
305 310 315 320

Leu Ser Thr Ser Ala Pro Pro Tyr Met His Gly Gln Met Leu Arg Ser
325 330 335

Leu Tyr Gln Gly Gln Gln Ile Ile Ile Gln Asn Leu Tyr Arg Leu Ser
340 345 350

Leu His Leu Gln Met Asp Leu Pro Leu Met Thr Pro Glu Ala Tyr Arg
355 360 365

Gln Gln Val Ala Lys Leu Gly Asp Gln Pro Ser Thr Asp Arg Gly Glu
370 375 380

Glu Pro Ser Gly Ala Ala Ala Thr Glu Asp Pro Ala Val Asp Glu Asp
385 390 395 400

Leu Ile Ala Asp Leu Ala Gly Ala Asp Trp Ser Pro Trp Ala Asp Leu
405 410 415

Gly Arg Gly Ser Glx
420

<210> 7

<211> 1596

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 7

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acctcacctc ctccttctcc aaattatgct cagatggacg gggAACCGGC acaaagatgc 180
acactagagg acttctctaa taccaccact cctcagttct ttacaagttt cacaaggccg 240
gaagtccaag cagatctct tactcaaggg aacctcttcc atggcttcc aaatgaagat 300
ccatatgcgc atctagcctc atacatagag atatgcagca ccgtaaaaat cgccggagtt 360
ccaaaagatg cgatactcct taacctcttt tcctttccc tagcaggaga ggcaaaaaga 420
tggttgcact cctttaaagg caatagctt agaacatggg aagaagtatg ggaaaaattc 480
ttaaagaagt atttcccaga gtcaaagacc gtcgaacgaa agatggagat ttcttatttc 540
catcaatttc tggatgaatc ccttagcgaa gcactagacc atttccacgg attgctaaga 600
aaaacaccaa cacacagata cagcgagcca gtacaactaa acatattcat cgatgactt 660
caactcttaa tcgaaacagc tactagaggg aagatcaagc tgaagactcc cgaagaagcg 720

atggagctcg tcgagaacat ggccggctagc gatcaagcaa tccttcatga tcacacttat 780
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aagctgtga cgaggcagat agaagccctc atcgaaacccc tcagcaagct gcctcaacaa 900
ttacaagcga taagttcttc ccactcttct gttttgcagg tagaagaatg ccccacatgc 960
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aagcgatcca agagccagag agcaaggaa gccaag 1596

<210> 8

<211> 532

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 8

Met Arg Gly Arg Thr Ala Ser Gly Asp Val Val Pro Ile Asn Leu Glu
1 5 10 15

Ile Glu Ala Thr Cys Arg Arg Asn Asn Ala Ala Arg Arg Arg Arg Glu
20 25 30

Gln Asp Ile Glu Gly Ser Ser Tyr Thr Ser Pro Pro Pro Ser Pro Asn
35 40 45

Tyr Ala Gln Met Asp Gly Glu Pro Ala Gln Arg Val Thr Leu Glu Asp
50 55 60

Phe Ser Asn Thr Thr Pro Gln Phe Phe Thr Ser Ile Thr Arg Pro
65 70 75 80

Glu Val Gln Ala Asp Leu Leu Thr Gln Gly Asn Leu Phe His Gly Leu
85 90 95

Pro Asn Glu Asp Pro Tyr Ala His Leu Ala Ser Tyr Ile Glu Ile Cys
100 105 110

Ser Thr Val Lys Ile Ala Gly Val Pro Lys Asp Ala Ile Leu Leu Asn
115 120 125

Leu Phe Ser Phe Ser Leu Ala Gly Glu Ala Lys Arg Trp Leu His Ser

130

135

140

Phe Lys Gly Asn Ser Leu Arg Thr Trp Glu Glu Val Val Glu Lys Phe
 145 150 155 160
 Leu Lys Lys Tyr Phe Pro Glu Ser Lys Thr Val Glu Arg Lys Met Glu
 165 170 175
 Ile Ser Tyr Phe His Gln Phe Leu Asp Glu Ser Leu Ser Glu Ala Leu
 180 185 190
 Asp His Phe His Gly Leu Leu Arg Lys Thr Pro Thr His Arg Tyr Ser
 195 200 205
 Glu Pro Val Gln Leu Asn Ile Phe Ile Asp Asp Leu Gln Leu Leu Ile
 210 215 220
 Glu Thr Ala Thr Arg Gly Lys Ile Lys Leu Lys Thr Pro Glu Glu Ala
 225 230 235 240
 Met Glu Leu Val Glu Asn Met Ala Ala Ser Asp Gln Ala Ile Leu His
 245 250 255
 Asp His Thr Tyr Val Pro Thr Lys Arg Ser Leu Leu Glu Leu Ser Thr
 260 265 270
 Gln Asp Ala Thr Leu Val Gln Asn Lys Leu Leu Thr Arg Gln Ile Glu
 275 280 285
 Ala Leu Ile Glu Thr Leu Ser Lys Leu Pro Gln Gln Leu Gln Ala Ile
 290 295 300
 Ser Ser Ser His Ser Ser Val Leu Gln Val Glu Glu Cys Pro Thr Cys
 305 310 315 320
 Arg Gly Thr His Glu Pro Gly Gln Cys Ala Ser Gln Gln Asp Pro Ser
 325 330 335
 Arg Glu Val Asn Tyr Ile Gly Ile Leu Asn Arg Tyr Gly Phe Gln Gly
 340 345 350
 Tyr Asn Gln Gly Asn Pro Ser Gly Phe Asn Gln Gly Ala Thr Arg Phe
 355 360 365
 Asn His Glu Pro Pro Gly Phe Asn Gln Gly Arg Asn Phe Met Gln Gly
 370 375 380
 Ser Ser Trp Thr Asn Lys Gly Asn Gln Tyr Lys Glu Gln Arg Asn Gln
 385 390 395 400
 Pro Pro Tyr Gln Pro Pro Tyr Gln His Pro Ser Gln Gly Pro Asn Gln

405

410

415

Gln Glu Lys Pro Thr Lys Ile Glu Glu Leu Leu Leu Gln Phe Ile Lys
420 425 430

Glu Thr Arg Ser His Gln Lys Ser Thr Asp Ala Ala Ile Arg Asn Leu
435 440 445

Glu Val Gln Met Gly Gln Leu Ala His Asp Lys Ala Glu Arg Pro Thr
450 455 460

Arg Thr Phe Gly Ala Asn Met Glu Arg Arg Thr Pro Arg Lys Asp Lys
465 470 475 480

Ala Val Leu Thr Arg Gly Gln Arg Arg Ala Gln Glu Glu Gly Lys Val
485 490 495

Glu Gly Glu Asp Trp Pro Glu Glu Gly Arg Thr Glu Lys Thr Glu Glu
500 505 510

Glu Glu Lys Val Ala Glu Glu Pro Lys Arg Thr Lys Ser Gln Arg Ala
515 520 525

Arg Glu Ala Lys
530

<210> 9
<211> 603
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 9
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atcatggaag tagagatctt tgactgttgg ggcataagact tcatggggcc ttttccttcg 120
tcatacggga atgtctacat cttggtagct gtggattacg tctccaaatg ggtggaagcc 180
atagccacgc caaaggacga tgccaggta gtgatcaa at ttctgaagaa gaacat tttt 240
tcccgtttt gagtcccacg agccttgatt agtgcata gggccac accttatcac 300
cagttgaaga aagtccctgaa gcactataat gtccgacata aggtggccac accttatcac 360
cctcagacaa atggccaagc agaaatttct aacaggggacg tcaagcgaat cctggaaaag 420
acagttgcac caacaagaaa ggattggtcc ttgaagctcg atgatgctct ctggccat 480
aggacagcgt tcaagactcc catcggtta tcaccatttc agctagtgtt tgggaaggca 540
tgtcatttac cagtggagct ggagtacaaa gcatattggg ctctcaagtt gctcaactt 600
gac 603

<210> 10
<211> 201

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 10

Cys Asp Lys Cys Gln Arg Thr Gly Gly Ile Ser Arg Arg Asn Glu Met
1 5 10 15

Pro Leu Gln Asn Ile Met Glu Val Glu Ile Phe Asp Cys Trp Gly Ile
20 25 30

Asp Phe Met Gly Pro Phe Pro Ser Ser Tyr Gly Asn Val Tyr Ile Leu
35 40 45

Val Ala Val Asp Tyr Val Ser Lys Trp Val Glu Ala Ile Ala Thr Pro
50 55 60

Lys Asp Asp Ala Arg Val Val Ile Lys Phe Leu Lys Lys Asn Ile Phe
65 70 75 80

Ser Arg Phe Gly Val Pro Arg Ala Leu Ile Ser Asp Arg Gly Thr His
85 90 95

Phe Cys Asn Asn Gln Leu Lys Lys Val Leu Glu His Tyr Asn Val Arg
100 105 110

His Lys Val Ala Thr Pro Tyr His Pro Gln Thr Asn Gly Gln Ala Glu
115 120 125

Ile Ser Asn Arg Glu Leu Lys Arg Ile Leu Glu Lys Thr Val Ala Ser
130 135 140

Thr Arg Lys Asp Trp Ser Leu Lys Leu Asp Asp Ala Leu Trp Ala Tyr
145 150 155 160

Arg Thr Ala Phe Lys Thr Pro Ile Gly Leu Ser Pro Phe Gln Leu Val
165 170 175

Tyr Gly Lys Ala Cys His Leu Pro Val Glu Leu Glu Tyr Lys Ala Tyr
180 185 190

Trp Ala Leu Lys Leu Leu Asn Phe Asp
195 200

<210> 11

<211> 600

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 11

ttggaggctg ggctcatata ccccatctct gacagcgctt gggtaagccc agtacaggtg 60
gttcccaaga aagggtggat gacagtggta cgagatgaga ggaatgactt gataccaaca 120
cgaactgtca ctggttggcg aatgtgtatc gactatcgca agctgaatga agccacacgg 180
aaggaccatt tccccttacc tttcatggat cagatgctgg agagacttgc agggcaggca 240
tactactgtt tcttggatgg atactcggttacaaccaga tcgcggtaga ccccagagat 300
caggagaaga cggccctttac atgcccctt ggcgtctttg cttacagaag gatgccattc 360
gggttatgtatgcaccaggc cacatccatg aggtgcattgc tggccatttt ttcagacatg 420
gtggagaaaaa gcatcgaggt atttatggac gacttctgg ttttggacc ctcatttgac 480
agctgtttga ggaacctaga gagggtactt cagaggtgcg aagagactaa cttggtaactg 540
aattggaaaaa agtgcattt catggttcga gagggcatag tcctaggcca caagatctca 600

<210> 12

<211> 200
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 12

Leu Glu Ala Gly Leu Ile Tyr Pro Ile Ser Asp Ser Ala Trp Val Ser
1 5 10 15

Pro Val Gln Val Val Pro Lys Lys Gly Gly Met Thr Val Val Arg Asp
20 25 30

Glu Arg Asn Asp Leu Ile Pro Thr Arg Thr Val Thr Gly Trp Arg Met
35 40 45

Cys Ile Asp Tyr Arg Lys Leu Asn Glu Ala Thr Arg Lys Asp His Phe
50 55 60

Pro Leu Pro Phe Met Asp Gln Met Leu Glu Arg Leu Ala Gly Gln Ala
65 70 75 80

Tyr Tyr Cys Phe Leu Asp Gly Tyr Ser Gly Tyr Asn Gln Ile Ala Val
85 90 95

Asp Pro Arg Asp Gln Glu Lys Thr Ala Phe Thr Cys Pro Phe Gly Val
100 105 110

Phe Ala Tyr Arg Arg Met Pro Phe Gly Leu Cys Asn Ala Pro Ala Thr

115

120

125

Phe Gln Arg Cys Met Leu Ala Ile Phe Ser Asp Met Val Glu Lys Ser
130 135 140

Ile Glu Val Phe Met Asp Asp Phe Ser Val Phe Gly Pro Ser Phe Asp
145 150 155 160

Ser Cys Leu Arg Asn Leu Glu Arg Val Leu Gln Arg Cys Glu Glu Thr
165 170 175

Asn Leu Val Leu Asn Trp Glu Lys Cys His Phe Met Val Arg Glu Gly
180 185 190

Ile Val Leu Gly His Lys Ile Ser
195 200

<210> 13

<211> 858

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 13

aaggaagaac cactagccct tccacaggat ctccccatatc ctatggcacc caccaagaag 60
aacaaggagc gttactttgc acgtttcttg gaaatattca aagggttaga aatcactatg 120
ccattcgggg aaggcttaca gcagatgccc ctctactcca aatttatgaa agacatcctc 180
accaagaagg ggaagtataat tgacaacgag aatattgtgg taggaggcaa ttgcagtgcg 240
ataatacataa ggattctacc caagaagttaa aaagaccccg gaagtgttac catccgtgc 300
accatttggga aggaagccgt aaacaaggcc ctcattgtac taggagcaag tatcaatctg 360
atgccttgcgtt caatgtgcaa aagaatttggg aatttgaaaga tagatcccac caagatgacg 420
cttcaactgg cagaccgctc aatcacaagg ccatatgggg tggtagaaga tgcctggtc 480
aaggtacgccc acttcacttt tccgggtggac tttgttatca tggatatcga agaagacact 540
gagattcccc ttatcttagg cagacccttc atgctgactg ccaactgtgt ggtggatatg 600
gggaaaggga acttagagtt gactattgtatc aatcagaaga tcaccttgc ctttatcaag 660
gcaatgaagt acccacagga gggtttggaa tgcttcagaa tagaggagat tgatgaggaa 720
gatgtcagtt ttctcgagac accaaagact tcgcttagaaa aagcaatggtaa aatcatttta 780
gactgtctaa ccagtgaaga ggaagaagat ctgaaggctt gcttggaaaa cttggatcaa 840
gaagacagta ttccctgag 858

<210> 14

<211> 286

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant

retroelement sequence

<400> 14
Lys Glu Glu Pro Leu Ala Leu Pro Gln Asp Leu Pro Tyr Pro Met Ala
1 5 10 15
Pro Thr Lys Lys Asn Lys Glu Arg Tyr Phe Ala Arg Phe Leu Glu Ile
20 25 30
Phe Lys Gly Leu Glu Ile Thr Met Pro Phe Gly Glu Ala Leu Gln Gln
35 40 45
Met Pro Leu Tyr Ser Lys Phe Met Lys Asp Ile Leu Thr Lys Lys Gly
50 55 60
Lys Tyr Ile Asp Asn Glu Asn Ile Val Val Gly Gly Asn Cys Ser Ala
65 70 75 80
Ile Ile Gln Arg Ile Leu Pro Lys Lys Phe Lys Asp Pro Gly Ser Val
85 90 95
Thr Ile Pro Cys Thr Ile Gly Lys Glu Ala Val Asn Lys Ala Leu Ile
100 105 110
Asp Leu Gly Ala Ser Ile Asn Leu Met Pro Leu Ser Met Cys Lys Arg
115 120 125
Ile Gly Asn Leu Lys Ile Asp Pro Thr Lys Met Thr Leu Gln Leu Ala
130 135 140
Asp Arg Ser Ile Thr Arg Pro Tyr Gly Val Val Glu Asp Val Leu Val
145 150 155 160
Lys Val Arg His Phe Thr Phe Pro Val Asp Phe Val Ile Met Asp Ile
165 170 175
Glu Glu Asp Thr Glu Ile Pro Leu Ile Leu Gly Arg Pro Phe Met Leu
180 185 190
Thr Ala Asn Cys Val Val Asp Met Gly Lys Gly Asn Leu Glu Leu Thr
195 200 205
Ile Asp Asn Gln Lys Ile Thr Phe Asp Leu Ile Lys Ala Met Lys Tyr
210 215 220
Pro Gln Glu Gly Trp Lys Cys Phe Arg Ile Glu Glu Ile Asp Glu Glu
225 230 235 240
Asp Val Ser Phe Leu Glu Thr Pro Lys Thr Ser Leu Glu Lys Ala Met
245 250 255

Val Asn His Leu Asp Cys Leu Thr Ser Glu Glu Glu Asp Leu Lys
260 265 270

Ala Cys Leu Glu Asn Leu Asp Gln Glu Asp Ser Ile Pro Glu
275 280 285

<210> 15
<211> 192
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 15
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gacaaggat ttcacgcccatttattatgct agcaaggatcc tgaatgaagc acagttgaat 120
tatgcacca cagaaaagga gatgctagcc attgtctttg cttggagaa gttcaggatca 180
tacttgatag gg 192

<210> 16
<211> 64
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 16
Phe Glu Leu Met Cys Asp Ala Ser Asp Tyr Ala Val Gly Ala Val Leu
1 5 10 15

Gly Gln Arg Lys Asp Lys Val Phe His Ala Ile Tyr Tyr Ala Ser Lys
20 25 30

Val Leu Asn Glu Ala Gln Leu Asn Tyr Ala Thr Thr Glu Lys Glu Met
35 40 45

Leu Ala Ile Val Phe Ala Leu Glu Lys Phe Arg Ser Tyr Leu Ile Gly
50 55 60

<210> 17
<211> 12286

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 17

tgataactgc taaaataattt tgaattaataa gtagaaaaattt agtcaaattt tggcttaaaa 60
ttaatttattt agcagttattt tgtgattaaa agtttagaaaa gcaattaagt tgaattttt 120
gccccatata tggaaaactga aggtacaaca agccaaaaggc agcagaaaagt gaagaaaaag 180
aataaaatctt gaagcagacc cagcccaaca cgcgcctta gcgcgcgtca cgcgctaagc 240
ttgcaaggca gcacaggcac taagcgaggc gttaaagcagc aagatgcagg attcgttacg 300
tgcgctaagc gcgaggcac cgttaagcgc gcgatccaa agaagcacac gctaagccctg 360
cagcatgcgc taagcgcc tacgaaggcc caaagcccat ttctacaccc ataaatagag 420
atccaagcca agggagaatg tacacccctgc ctcagagcac ttctctcagc attccaagct 480
tgagctctcc cttttctctc tatattctt gtttttattt tccattctt ctttcaccc 540
agttgtaaag cccctcaatg gccatgagtg gttaaatcccc tagtacggc ctggtagggc 600
taaaaagcca atgatgtatg gtgtacttca agagttatca atgcaaagag gattcattcc 660
aggttttatg ttcttaattctt ttcctttta tcttcattt atgtcttaaa tttctgttgg 720
gttttattcg ctcgggagag ggtatttctt aataagggtt taagaagtaa tgcatacgatc 780
agtttaggg gttatacgct tggtaaaggg taacacccaa tagaacaat taagaaaaagg 840
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atctagaatt taaccttaat gcattttaat tattgaatct tcacaaaggc atttgggaga 960
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gaagagtatt caataaaatg caataaaatc cctatggaaa cgataactcg acttccgaga 1260
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ctggagacgt tggccctattt aacttagaaa ttgaagctac gtgtccggcgt aacaacgcgt 1560
caagaagaag aaggggagca gacatagaag gaagtagtta cacctcacct ctccttctc 1620
caaattatgc tcagatggac ggggaacccgg cacaagagt cacactagag gacttctcta 1680
ataccaccac tcctcagttc tttacaagta tcacaaggcc ggaagtc当地 gcagatctcc 1740
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catacataga gatatgcagc accgttaaaa tgcgggagtt tccaaaagat ggcataactcc 1860
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retroelement sequence

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Tyr Ala Gln Met Asp Gly Glu Pro Ala Gln Arg Val Thr Leu Glu Asp
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Phe Ser Asn Thr Thr Pro Gln Phe Phe Thr Ser Ile Thr Arg Pro
65 70 75 80

Glu Val Gln Ala Asp Leu Leu Thr Gln Gly Asn Leu Phe His Gly Leu
85 90 95

Pro Asn Glu Asp Pro Tyr Ala His Leu Ala Ser Tyr Ile Glu Ile Cys
100 105 110

Ser Thr Val Lys Ile Ala Gly Val Pro Lys Asp Ala Ile Leu Leu Asn
115 120 125

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Phe Lys Gly Asn Ser Leu Arg Thr Trp Glu Glu Val Val Glu Lys Phe
145 150 155 160

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Ile Ser Tyr Phe His Gln Phe Leu Asp Glu Ser Leu Ser Glu Ala Leu
180 185 190

Asp His Phe His Gly Leu Leu Arg Lys Thr Pro Thr His Arg Tyr Ser
195 200 205

Glu Pro Val Gln Leu Asn Ile Phe Ile Asp Asp Leu Gln Leu Leu Ile
210 215 220

Glu Thr Ala Thr Arg Gly Lys Ile Lys Leu Lys Thr Pro Glu Glu Ala
225 230 235 240

Met Glu Leu Val Glu Asn Met Ala Ala Ser Asp Gln Ala Ile Leu His
245 250 255

Asp His Thr Tyr Val Pro Thr Lys Arg Ser Leu Leu Glu Leu Ser Thr
260 265 270

Gln Asp Ala Thr Leu Val Gln Asn Lys Leu Leu Thr Arg Gln Ile Glu
275 280 285

Ala Leu Ile Glu Thr Leu Ser Lys Leu Pro Gln Gln Leu Gln Ala Ile
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Ser Ser Ser His Ser Ser Val Leu Gln Val Glu Glu Cys Pro Thr Cys
305 310 315 320

Arg Gly Thr His Glu Pro Gly Gln Cys Ala Ser Gln Gln Asp Pro Ser
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Arg Glu Val Asn Tyr Ile Gly Ile Leu Asn Arg Tyr Gly Phe Gln Gly
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Tyr Asn Gln Gly Asn Pro Ser Gly Phe Asn Gln Gly Ala Thr Arg Phe
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Ser Ser Trp Thr Asn Lys Gly Asn Gln Tyr Lys Glu Gln Arg Asn Gln
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Pro Pro Tyr Gln Pro Pro Tyr Gln His Pro Ser Gln Gly Pro Asn Gln
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Gln Glu Lys Pro Thr Lys Ile Glu Glu Leu Leu Gln Phe Ile Lys

420

425

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Glu Val Gln Met Gly Gln Leu Ala His Asp Lys Ala Glu Arg Pro Thr
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Val Phe Leu Glu Glu Asp Lys Pro Ile Val Ile Ser Asn Ala Leu Thr			
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Thr Glu Glu Glu Asn Arg Leu Val Asp Val Leu Lys Lys His Arg Glu			
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Ala Ile Gly Trp His Ile Ser Asp Leu Lys Glu Ile Ser Pro Ala Tyr			
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Cys Met His Arg Ile Met Met Glu Glu Asp Tyr Lys Pro Val Arg Gln			
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<210> 30

<211> 192

<212> DNA

<213> *Pisum sativum*

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<211> 581

<212> DNA

<213> *Pisum sativum*

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<211> 1362

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<213> Glycine max

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<400> 33

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<211> 597
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<211> 603
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<213> Glycine max

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<211> 150
<212> DNA
<213> Glycine max

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<211> 11
<212> DNA
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<400> 37
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<210> 38
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<212> DNA
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<400> 38
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15

<210> 39
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<212> DNA
<213> Glycine max

<400> 39
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27

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<400> 40
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9

<210> 41
<211> 16
<212> DNA
<213> Glycine max

<400> 41
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16